



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,577	04/20/2001	Klaus M. Hahn	1361.007US1	1433
21186	7590	02/27/2004	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			SHIAO, REI TSANG	
			ART UNIT	PAPER NUMBER
			1626	

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Supplemental RE start  
Office Action Summary

Application No.

09/839,577

Applicant(s)

HAHN ET AL.

Examiner

Robert Shiao

Art Unit

1626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on telephone interview held on 2/18, 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-92 is/are pending in the application.
- 4a) Of the above claim(s) 1-83, 91 and 92 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 84-90 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

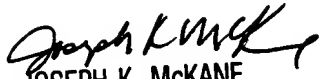
- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☒ Interview Summary (PTO-413) Paper No(s). 1203.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: See Continuation Sheet.

Continuation of Attachment(s) 6). Other: Applicants are allowed to response previous Office Action, dated 12/10, 2003, within three months from the mailing date of this supplemental office action.

R.S.

  
JOSEPH K. MCKANE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1600

### DETAILED ACTION

1. This application claims benefit of the provisional application: 60/218,113 with a filing date 7/13, 2000.
2. Claims 1-92 are pending in the application.

### ***Responses to Applicant's Election/Restrictions***

3. Applicant's election with traverse of Group XIII claims 84-90 in Paper No. 1003, dated October 9, 2003, is acknowledged. Applicant further elected a single species of the compound of the formula of claim 84, wherein  $R^8$  represents  $C(CH_3)_2$ ,  $R^9$  represents hydrogen,  $R^{10}$  represents alkyl-SO<sub>3</sub>,  $R^{11}$  represents C=O, and  $R^{12}$  represents SO<sub>2</sub>. The traversal is on the grounds that the instant inventions share a common genus and are related, and the entire application can be searched without serious burden, and MPEP 803, and 806.04 (b) were cited. This is not found persuasive, and the reasons are given *infra*.

Groups I -III, VI-VII, XIII-XIV and Groups IV-V, VIII-XII are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using the product (MPEP 806.05(h)). In the instant case, the compounds (i.e., indoline) as claimed (i.e., Group XIII) can be used in a materially different process of using, i.e., filter dye of US 4,994,356. The instant compounds (i.e., indoline) as demonstrated throughout the specification and in claims

Art Unit: 1626

84-90 which are directed to several different methods of using the compounds, for example a fluorescent compound linked to peptides or polypeptides, or antibodies.

Each of Groups I –III, VI-VII, and XIII-XIV are distinct and independent, one from the other on the basis of structure defined in the claimed compounds as directed to different compounds (i.e., formula I, III, IV) having various heterocyclyl, heteroaryl, peptides, protein, and nucleic acid moieties. Absent factual evidence to the contrary, each is a different chemical compound.

Each Groups IV-V, and VIII-XII are independent and distinct methods of use, one from the other on the basis of methods of use defined in the claimed methods as directed to different methods, i.e., identifying an optimal position for placement of a functional molecule on a peptide of Group IV and detecting GTP activation of Rho G'rpase protein in a cell using a polypeptide biosensor of Group VIII differ in elements, bonding arrangement and chemical property (i.e., reagents and starting materials), reaction conditions, instruments to such an extend that a reference anticipating methods of use of any one group would not render another group obvious.

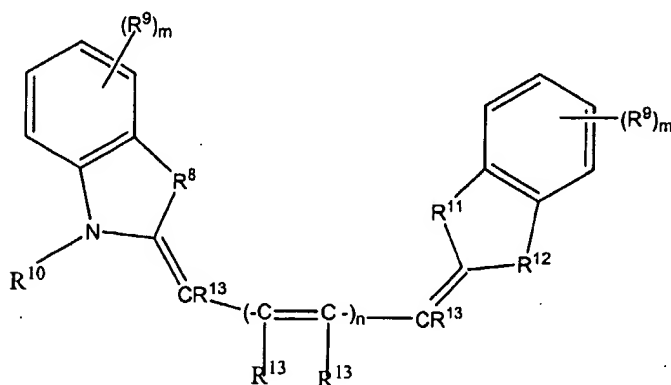
Each group is directed to art recognized divergent subject matter which requires different searching strategies for each group. Moreover, the examiner must perform a commercial database search on the subject matter of each group in addition to a paper search, which is quite burdensome to the examiner.

The requirement is still deemed proper and is therefore made **FINAL**.

**Status of claims**

4. Claims 1-92 are pending in the application. The scope of the invention of the elected subject matter is as follows:

A fluorescent compound of below formula, and this compound is found in the pages 6- 7 and 22-24 of the instant application,



wherein

each  $m$  is separately an integer ranging from 1-3;

$n$  is an integer ranging from 0 to 5;

$R^8$ ,  $R^{11}$ , and  $R^{12}$  represent independently  $CO$ ,  $SO_2$ ,  $C=C(CN_2)$ ,  $S$ ,  $O$ , or  $C(CH_3)_2$ ;

each  $R^{13}$  represents independently hydrogen, alkyl, branched alkyl derivatized with charged groups to enhance water solubility and enhance photostability, and

$R^{13}$  does not represent heterocyclic ring; and

each  $R^9$  and  $R^{10}$  independently represents hydrogen, alkyl- $SO_3$ , a reactive group, a charged group, or an alkyl chain.

As a result of the election and corresponding elected subject matter identified, claims 84-90 embraced by above elected subject matter, are prosecuted in the case, claims 84-90, not embraced by above elected subject matter, are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected invention. The withdrawn subject matter of claims 84-90, in part, 1-83, and 91-92, is properly restricted as it differs materially in structure and in element from the elected subject matter supra so as to be patentably distinct there from, i.e., the fields of search are not co-extensive.

The above mentioned withdrawn compounds which are withdrawn from consideration as being for non-elected subject matter differ materially in structure and composition from the compounds of the elected invention. The withdrawn compounds contain varying functional groups (i.e., R<sup>13</sup> variable) or products which differ from those of the elected invention such as morpholine, piperazine, pyridine, etc, which are chemically recognized to differ in structure and function. This recognized chemical diversity of the functional groups can be seen by the various classifications of these functional groups in the U.S. classification system, i.e., class 544 subclass 106(+) (morpholine), class 544 subclass 224(+)( piperazine), class 546 subclass 268.1 (+) (pyridine).

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

Art Unit: 1626

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 84-90 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Applicants claim a compound the formula of claim 84, wherein  $R^9$ ,  $R^{10}$ , and  $R^{13}$  independently represent charged groups or a reactive group without limitation. Applicant's specification does not disclose such a numerous amount of compounds having charged groups or a reactive group (i.e., heteroaryl or heterocyclic ring) without limitation in the specification. A suggestion to obviate the rejection would be to incorporate the limitation of "charged groups" and "a reactive group" into the claims respectively, see page 7, lines 3-26.

7. Claims 84-90 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

For rejections under 35 U.S.C. 112, first paragraph, the following factors must be considered (In re Wands, 8 USPQ2d 1400, 1988):

- 1) Nature of invention.
- 2) State of prior art.
- 3) Level of ordinary skill in the art.
- 4) Level of predictability in the art.

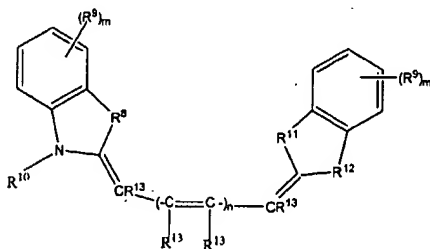
Art Unit: 1626

- 5) Amount of direction and guidance provided by the inventor.
- 6) Existence of working examples.
- 7) Breadth of claims.
- 8) Quantity of experimentation needed to make or use the invention based on the content of the disclosure.

See below:

1) Nature of the invention.

The claims are drawn to a compound (i.e., indoline) of the formula of claim 84,



wherein  $R^9$ ,  $R^{10}$ , and  $R^{13}$  independently represent charged groups or a reactive group without limitation.

2) State of the prior art.

The reference Diehl et al. 4,994,356 does not indicate which compounds of instant formula may be useful in the claimed invention. Diehl et al. '356 is pertaining to compounds (i.e., indoline) as filter dye with various substituents.

3) Level of ordinary skill in the art.

The level of ordinary skill in the art is high. The compounds (i.e., indoline) of above formula, wherein  $R^9$ ,  $R^{10}$ , and  $R^{13}$  independently represent charged groups or a reactive group without limitation. Applicant's specification does not enable the public to

prepare such a numerous amount of compounds of the formula by the instant examples disclosed in the specification.

4) Level of predictability in the art.

The art pertaining to related compounds (i.e., indoline) of above formula, wherein  $R^9$ ,  $R^{10}$ , and  $R^{13}$  independently represent charged groups or a reactive group without limitation, remains highly unpredictable, see claim 84, page 16, lines 6-8, and claim 88, lines 3-4. Different types of the genus of the formula require various experimental procedures and without guidance that is applicable to all possible "charged groups or a reactive group", there would be little predictability in the scope of claimed compounds.

5) Amount of direction and guidance provided by the inventor.

The compounds of above formula, wherein  $R^9$ ,  $R^{10}$ , and  $R^{13}$  independently represent charged groups or a reactive group without limitation, encompass a vast number of compounds. Applicant's limited guidance does not enable the public to prepare such a numerous amount of " $R^9$ ,  $R^{10}$ , and  $R^{13}$  independently represent charged groups or a reactive group without limitation" in the specification. There is no enablement for "the compounds of above formula, wherein  $R^9$ ,  $R^{10}$ , and  $R^{13}$  independently represent charged groups or a reactive group without limitation" representing general substituents including variables  $R^9$ ,  $R^{10}$ , and  $R^{13}$  are acyl, nitro, halogen, aryl, heterocyclic ring, or heteroaryl, etc., many of which are neither enabled nor supported in the specification.

6) Existence of working examples.

The compounds of above formula, wherein  $R^9$ ,  $R^{10}$ , and  $R^{13}$  independently represent charged groups or a reactive group without limitation, encompass a vast

number of compounds. Applicant's limited working examples do not enable the public to prepare such a numerous amount of "the compounds of above formula, wherein  $R^9$ ,  $R^{10}$ , and  $R^{13}$  independently represent charged groups or a reactive group without limitation" in the specification. Applicants claim "a compound of above formula, wherein  $R^9$ ,  $R^{10}$ , and  $R^{13}$  independently represent charged groups or a reactive group without limitation", however, the specification provides only limited examples of the instant compounds.

7) Breadth of claims.

The claims are extremely broad due to the vast number of possible "a compound of above formula, wherein  $R^9$ ,  $R^{10}$ , and  $R^{13}$  independently represent charged groups or a reactive group without limitation".

8) Quantity of experimentation needed to make or use the invention based on the content of the disclosure.

The specification did not enable any person skilled in the art to which it pertains to make or use the invention commensurate in scope with this claim. In particular, the specification failed to enable the skilled artisan to practice the invention without undue experimentation. The skilled artisan would have a numerous amount of modifications to perform in order to obtain "a compound of above formula, wherein  $R^9$ ,  $R^{10}$ , and  $R^{13}$  independently represent charged groups or a reactive group without limitation" as claimed. Based on the unpredictable nature of the invention and state of the prior art and the extreme breadth of the claims, one skilled in the art could not perform the claimed process without undue experimentation, see *In re Armbruster* 185 USPQ 152

CCPA 1975. A suggestion to obviate the rejection would be to incorporate the limitation of "charged groups" and "a reactive group" into the claims respectively, see page 7, lines 3-26.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Applicants claim a fluorescent compound of the formula of claim 84, and this compound is found in the pages 6- 7 and 22-24 of the instant application.

Claims 84-90 are rejected under 35 U.S.C. 102(a, b) as being anticipated by (1) Pokrovskaya et al. publication, Uspekhi Nauchnoi Fotografii (1960), 7, 191-200, also see CAS:55:142216; (2) Van Dormael et al. publication, Compt. rend. congr. intern. chim. ind., 31e Liege, 1958, (Pub. as Ind. chim. belge, Suppl.) (1959), 2, 512-17, also see CAS:54:26887; (3) Carroll's DE 926586, also see CAS:51:70442; (4) Shiba et al. DE 2010762, also see CAS:74:36922; (5) Helber et al. US 6,180,295, also see CAS:132:229438, It is noted that Helber et al. '295 is a 102(e) reference; (6) Deaton et al. US 6,331,385, also see CAS:132:229435, It is noted that Deaton et al. '385 is a 102(e) reference; (7) Diehl US 4,994,356, also see CAS:116:48759; (8) Naef's US 4,750,228, also see CAS:109:39399; (9) Horie et al. US 4,469,768, also see

Art Unit: 1626

CAS:98:188999; (10) Petro et al. US 3,578,456, also see CAS:72:116794; (11) Matsuyama et al. DE 2140539, also see CAS:77:12280; (12) Kampfer et al. US 3,764,322, also see CAS:77:68574; (13) Kampfer et al. US 3,810,760, also see CAS:78:65233.

Pokrovskaya et al. disclose 11 compounds including Benzo[b]thiophen-3(2H)-one, 2-[6-(3-ethyl-2(3H)-benzothiazolylidene)-2,4-hexadienylidene]- (RN:36652-37-6), Benzo[b]thiophen-3(2H)-one; 2-[(3-ethyl-2(3H)-benzothiazolylidene)ethylidene]- (RN:50963-37-6); Benzo[b]thiophen-3(2H)-one, 2-[4-(3-ethyl-2(3H)-benzothiazolylidene)-2-butenylidene]- (55371-81-8); Benzo[b]thiophen-3(2H)-one, 2-[(1-ethyl-1,3-dihydro-3,3-dimethyl-2H-indol-2-ylidene)ethylidene]- (RN:71574-46-4); 3(2H)-Benzofuranone, 2-[4-(3-ethyl-2-benzothiazolylidene)-2-butenylidene]- (RN:102469-39-6); 1,3-Indandione, 2-[4-(1-ethyl-3,3-dimethyl-2-indolylidene)-2-butenylidene]- (RN:102891-82-7); 1,3-Indandione, 2-[6-(1-ethyl-3,3-dimethyl-2-indolylidene)-2,4-hexadienylidene]- (RN:103158-61-8); 1,3-Indandione, 2-[6-(3-ethyl-2-benzothiazolylidene)-2,4-hexadienylidene]- (RN:112552-29-1); Benzo[b]thiophen-3(2H)-one, 2-[4-(1-ethyl-3,3-dimethyl-2-indolylidene)-2-butenylidene]- (RN: 114280-01-2); 1,3-Indandione, 2-[4-(3-ethyl-2-benzothiazolylidene)-2-butenylidene]- (RN: 120174-63-2); and 3(2H) Benzofuranone, 2-[4-(1-ethyl-3,3-dimethyl-2-indolylidene)-2-butenylidene]- (RN: 102950-99-2), clearly anticipate the compounds of the formula of claim 84, wherein R<sup>8</sup>, R<sup>11</sup>, and R<sup>12</sup> independently represent C(CH<sub>3</sub>)<sub>2</sub>, S, CO, or O; R<sup>9</sup> and R<sup>10</sup> independently

Art Unit: 1626

represent hydrogen or alkyl;  $R^{13}$  represents hydrogen;  $n$  represents 0 to 2; and  $m$  represents 1.

Van Dormael et al. disclose a compound 1H-Indene-1,3(2H)-dione, 2-[(3-methyl-2(3H)-benzothiazolylidene)ethylidene]- (RN:101884-24-6), clearly anticipates the compounds of the formula of claim 84, wherein  $R^8$ ,  $R^{11}$ , and  $R^{12}$  independently represent S, or CO;  $R^9$  and  $R^{10}$  independently represent hydrogen or alkyl;  $R^{13}$  represents hydrogen;  $n$  represents 0; and  $m$  represents 1.

Carroll discloses three compounds Benzo[b]thiophen-3(2H)-one, 2-[(3-ethyl-2(3H)-benzothiazolylidene)ethylidene]-, 1,1-dioxide(RN:38408-89-8); Benzo[b]thiophen-3(2H)-one, 2-[2-(3-ethyl-2-benzoxazolinyldiene)ethylidene]-, 1,1-dioxide(RN:103155-039); Benzo[b]thiophen-3(2H)-one, 2-[2-(3-ethyl-2-benzothiazolinyldiene)-1methylethylidene]-, 1,1-dioxide(RN:108977-74-8), clearly anticipate the compounds of the formula of claim 84, wherein  $R^8$ ,  $R^{11}$ , and  $R^{12}$  independently represent S, CO, or  $SO_2$ , or O;  $R^9$  and  $R^{10}$  independently represent hydrogen or alkyl;  $R^{13}$  represents hydrogen or alkyl;  $n$  represents 0; and  $m$  represents 1.

Shiba et al. disclose a compound 1H-Indene-1,3(2H)-dione, 2-[(3-ethyl-2(3H)-benzothiazolylidene)ethylidene]- (RN:30457-59-1), clearly anticipates the compounds of the formula of claim 84, wherein  $R^8$ ,  $R^{11}$ , and  $R^{12}$  independently represent S, or CO;  $R^9$  and  $R^{10}$  independently represent hydrogen or alkyl;  $R^{13}$  represents hydrogen;  $n$  represents 0; and  $m$  represents 1.

Helber et al. '295 discloses five compounds including 3(2H)-Benzoxazole-propanesulfonic acid, 2-[[6-chloro-3-(dicyanomethylene)-1,1-dioxidobenzo[b]thien-

Art Unit: 1626

2(3H)-ylidene]ethylidene]-.alpha.-methyl-5-phenyl- (RN:260790-38-3); 3(2H)-Benzoxazolepropanesulfonic acid, 2-[(6-chloro-1,1-dioxido-3-oxobenzo[b]thien-2(3H)-ylidene)ethylidene]-5-phenyl-(RN:260790-40-7); 3(2H)-Benzoxazolepropanesulfonic acid, 2-[4-(6-chloro-1,1-dioxido-3-oxobenzo[b]thien-2(3H)-ylidene)-2-butenylidene]-5-phenyl-(RN:260790-42-9); 3(2H)-Benzoxazolepropanesulfonic acid, 2-[[6-chloro-3-(dicyanomethylene)-1,1-dioxidobenzo[b]thien-2(3H)-ylidene]ethylidene]- (RN:260976-85-0); and 3(2H)-Benzoxazolepropanaminium, 2-[[3-(dicyanomethylene)-1,1-dioxidobenzo[b] thien-2(3H)-ylidene]ethylidene]-N,N,N-trimethyl-5-phenyl-(RN:260976-86-1), clearly anticipate the compounds of the formula of claim 84, wherein R<sup>8</sup>, R<sup>11</sup>, and R<sup>12</sup> independently represent CO, SO<sub>2</sub>, C=C(CN)<sub>2</sub>, or O; R<sup>9</sup> and R<sup>10</sup> independently represent hydrogen, alkyl, a charged group, or a reactive group; R<sup>13</sup> represents hydrogen; n represents 0 or 1; and m represents 1.

Deaton et al. disclose a compound 3(2H)-Benzoxazolepropanesulfonic acid, 2-[[7-chloro-3-(dicyanomethylene)-1,1-dioxidobenzo[b]thien-2(3H)-ylidene]ethylidene]-5-phenyl-(RN:261173-80-2), clearly anticipates the compounds of the formula of claim 84, wherein R<sup>8</sup>, R<sup>11</sup>, and R<sup>12</sup> independently represent SO<sub>2</sub>, C=C(CN)<sub>2</sub>, or O; R<sup>9</sup> and R<sup>10</sup> independently represent hydrogen, alkyl, a charged group, or a reactive group; R<sup>13</sup> represents hydrogen; n represents 0; and m represents 1.

Diehl et al. disclose five compounds including 1H-Indene-5-carboxylic acid, 2-[(3-ethyl-2(3H)- benzoxazolylidene)ethylidene]-2,3-dihydro-1,3-dioxo-(RN:138530-46-8); 1H-Indene-5-carboxylic acid, 2-[4-(3-ethyl-2(3H)-benzoxazolylidene)-2-butenylidene]-2,3-dihydro-1,3-dioxo-(RN:138530-47-9); 1H-Indene-5-carboxylic acid, 2-[(3-ethyl-

Art Unit: 1626

2(3H)-benzothiazolylidene)ethylidene]-2,3-dihydro-1,3-dioxo-(RN:138530-49-1); 1H-Indene-5-carboxylic acid, 2-[4-(3-ethyl-2(3H)-benzothiazolylidene)-2-butenylidene]-2,3-dihydro-1,3-dioxo-(RN:138530-50-4); and 1H-Indene-5-carboxylic acid, 2-[(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)ethylidene]-2,3-dihydro-1,3-dioxo-(RN:138530-51-5), clearly anticipate the compounds of the formula of claim 84, wherein  $R^8$ ,  $R^{11}$ , and  $R^{12}$  independently represent  $C(CH_3)_2$ , S, CO, or O;  $R^9$  and  $R^{10}$  independently represent hydrogen, alkyl, a charged group, or a reactive group;  $R^{13}$  represents hydrogen; n represents 0 or 1; and m represents 1.

Naef. discloses four compounds including Propanedinitrile, [2-[(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)ethylidene]-1,1-dioxidobenzo[b]thien-3(2H)-ylidene]-(RN:115281-48-6), Propanedinitrile, [2-[(5-chloro-1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)ethylidene]-1,1-dioxidobenzo[b]thien-3(2H)-ylidene]-(RN:115281-49-7); Propanedinitrile, [2-[(1,3-dihydro-1,3,3-trimethyl-5-nitro-2H-indol-2-ylidene)ethylidene]-1,1-dioxidobenzo[b]thien-3(2H)-ylidene]-(RN:115281-50-0), and Propanedinitrile, [2-[(3-methyl-2(3H)-benzothiazolylidene)ethylidene]-1,1-dioxidobenzo[b]thien-3(2H)-ylidene]-(RN:115281-56-6), clearly anticipate the compounds of the formula of claim 84, wherein  $R^8$ ,  $R^{11}$ , and  $R^{12}$  independently represent  $C(CH_3)_2$ , S,  $SO_2$ , or  $C=C(CN)_2$ ;  $R^9$  and  $R^{10}$  independently represent hydrogen, alkyl, a charged group, or a reactive group;  $R^{13}$  represents hydrogen; n represents 0; and m represents 1.

Horie et al. disclose a compound 1H-Indene-1,3(2H)-dione, 2-[(1-ethyl-1,3-dihydro-3,3-dimethyl-2H-indol-2-ylidene)ethylidene]-(RN :85299-16-7), clearly anticipates the compounds of the formula of claim 84, wherein  $R^8$ ,  $R^{11}$ , and  $R^{12}$

Art Unit: 1626

independently represent  $C(CH_3)_2$  or CO;  $R^9$  and  $R^{10}$  independently represent hydrogen, or alkyl;  $R^{13}$  represents hydrogen; n represents 0; and m represents 1.

Petro et al. disclose a compound 1H-Indene-1,3(2H)-dione, 2-[4-(3-ethyl-2(3H)-benzoxazolylidene)-2-butenylidene]-(RN :28279-35-8), clearly anticipates the compounds of the formula of claim 84, wherein  $R^8$ ,  $R^{11}$ , and  $R^{12}$  independently represent CO or O;  $R^9$  and  $R^{10}$  independently represent hydrogen or alkyl;  $R^{13}$  represents hydrogen; n represents 1; and m represents 1.

Matsuyama et al. disclose a compound 1H-Indene-1,3(2H)-dione, 2-[(3-ethyl-2(3H)-benzoxazolylidene)ethylidene]-(RN:36591-79-4), clearly anticipates the compounds of the formula of claim 84, wherein  $R^8$ ,  $R^{11}$ , and  $R^{12}$  independently represent CO or O;  $R^9$  and  $R^{10}$  independently represent hydrogen or alkyl;  $R^{13}$  represents hydrogen or alkyl; n represents 0; and m represents 1.

Kampfer et al. '322 discloses two compound 1H-Indene-1,3(2H)-dione, 2-[(3-methyl-2(3H)-benzoxazolylidene)ethylidene]-(RN:38408-77-4), and Benzo[b]thiophen-3(2H)-one, 2-[(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)ethylidene]-, 1,1-dioxide (RN:38584-19-9), clearly anticipate the compounds of the formula of claim 84, wherein  $R^8$ ,  $R^{11}$ , and  $R^{12}$  independently represent  $C(CH_3)_2$ , CO,  $SO_2$  or O;  $R^9$  and  $R^{10}$  independently represent hydrogen or alkyl;  $R^{13}$  represents hydrogen or alkyl; n represents 0; and m represents 1.

Kampfer et al. '760 discloses a compound 1H-Indene-1,3(2H)-dione, 2-[(3-ethyl-6-iodo-2(3H)-benzothiazolylidene)ethylidene]-(RN:40622-45-5), clearly anticipates the compounds of the formula of claim 84, wherein  $R^8$ ,  $R^{11}$ , and  $R^{12}$  independently

Art Unit: 1626

represent S, or CO;  $R^9$  and  $R^{10}$  independently represent hydrogen, alkyl, a charged group, or a reactive group;  $R^{13}$  represents hydrogen or alkyl; n represents 0; and m represents 1.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

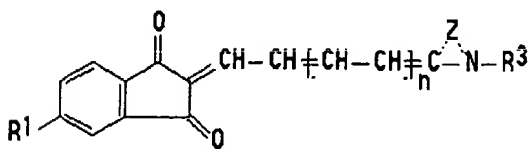
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 84-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diehl et al. US 4,994,356.

Applicants claim a fluorescent compound (i.e., indoline) of the formula of claim 84, and this compound is found in the pages 6- 7 and 22-24 of the instant application.

### **Determination of the scope and content of the prior art (MPEP §2141.01)**

Diehl et al. disclose a compound (i.e., indoline) of formula I as filter dye (light sensitive photographic elements),



, wherein n represents 0 or 1; R1 represents CO<sub>2</sub>H or NHSO<sub>2</sub>R<sub>2</sub>, and wherein R<sub>2</sub> represents alkyl or aryl; R<sub>3</sub> represents alkyl or aryl; and Z represents the atoms (i.e., S, O, or N atom) necessary to complete a heterocyclic ring. A number of

Art Unit: 1626

heterocyclic ring has been specifically exemplified, i.e., thiazole indole, oxazole, thiazoline, oxazoline, pyridine, etc, see column 1, lines 40-56, and column 2, lines 1-10, and 36-57. A number of compounds reading the formula have been specifically exemplified in columns 3-8. Diehl et al. also disclose that color photographic elements (i.e., optical brightness, image stabilizer, light-scattering materials) and color forming are well-known in the art, see column 9, lines 1-16, and Examples and Table 1 of column 10.

**Determination of the difference between the prior art and the claims (MPEP §2141.02)**

The difference between the instant compounds and Diehl et al. is that the variables  $R^{11}$  and  $R^{12}$  of instant compounds independently represent  $C(CH_3)_2$ , S, CO,  $SO_2$ ,  $C=C(CN)_2$ , or O, while Diehl et al. represent CO at the same positions.

**Finding of prima facie obviousness-rational and motivation (MPEP §2142-2143)**

One having ordinary skill in the art would find the instant claims prima facie obvious **because** one would be motivated to employ the compounds of Diehl et al. to obtain instant claimed compounds, wherein  $R^{11}$  and  $R^{12}$  independently represent CO,  $R^8$  represents  $C(CH_3)_2$ , S, CO,  $SO_2$ ,  $C=C(CN)_2$ , or O;  $R^9$  and  $R^{10}$  independently represent hydrogen, alkyl, a charged group (i.e.,  $CO_2H$ ), or a reactive group (i.e.,  $CO_2H$ );  $R^{13}$  represents hydrogen or alkyl; n represents 0 or 1; and m represents 1-3.

The motivation to obtain the instantly claimed compounds drives from the expectation that structurally similar compounds, known Diehl et al. light sensitive

Art Unit: 1626

compounds having a reactive group, are expected to possess similar properties, i.e., linked to peptides or antibodies.

***Objection***

11. Claims 84-90 are objected to as containing a non-elected subject matter.

***Telephone Inquiry***

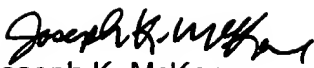
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Shiao whose telephone number is (703) 308-4002. The examiner can normally be reached on 8:30 AM - 5:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph K. McKane can be reached on (703) 308-4537. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3014 for regular communications and (703) 305-3014 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Application/Control Number: 09/839,577  
Art Unit: 1626

Page 19

  
Joseph K. McKane  
Supervisory Patent Examiner  
Art Unit 1626

  
Robert Shiao, Ph.D.  
Patent Examiner  
Art Unit 1626

December 3, 2003